



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5  
77 WEST JACKSON BOULEVARD  
CHICAGO, ILLINOIS 60604**

**SUBJECT:** CLEAN AIR ACT INSPECTION REPORT  
Metal Technologies, Inc.- Three Rivers Gray Iron, Three Rivers, MI

**FROM:** Valeria Apolinario  
AECAB (MN/OH)

**THRU:** Brian Dickens, Section Supervisor  
AECAB (MN/OH)

**TO:** File

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**BASIC INFORMATION**

**Facility Name:** Metal Technologies, Inc.- Three Rivers Gray Iron

**Facility Location:** 429 Fourth Street, Three Rivers, Michigan 49093

**Date of Inspection:** June 15, 2022

**EPA Inspectors:**

1. Valeria Apolinario, Environmental Engineer
2. Patrick Miller, Environmental Engineer

**Other Attendees:**

1. Dan Plant, Corporate Environmental Manager
2. David Bent, Plant Manager

**Contact Email Address:** dplant@metal-technologies.com

**Purpose of Inspection:** To determine compliance with the National Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries (NESHAP 5E) and the Metal Technologies' (facility) Renewable Operating Permit (ROP).

**Facility Type:** Iron Foundry

**Regulations Central to Inspection:** This inspection focused on the facility's NESHAP 5E obligations to operate bag leak detection systems on baghouses applied to meet the regulation's emission limits, monitor and maintain these baghouses, and determine ignitability for mold

vents. The facility's ROP lists eight baghouses at the facility, two of which control for emissions at the melt shop and are associated with NESHAP 5E. The ROP obligates daily observations of visible emissions and pressure drop monitoring for each baghouse.

**Arrival Time:** 11:00am

**Departure Time:** 12:47pm

**Inspection Type:**

- ☒ Unannounced Inspection
- ☐ Announced Inspection

**OPENING CONFERENCE**

- ☒ Presented Credentials
- ☒ Stated authority and purpose of inspection
- ☒ Provided Small Business Resource Information Sheet
- ☒ Provided CBI warning to facility

The following information was obtained verbally from Dan Plant and David Bent unless otherwise noted.

**Process Description:**

The facility is a foundry that produces gray iron. Incoming raw material is delivered by truck to the facility where it is inspected and sampled before being unloaded. A magnetic crane weighs the steel charge before it is sent to a scrap preheater. From the scrap preheater, the charge is placed into a charge bucket, approximately 5,150 pounds, to load into an electric induction furnace. The facility operates four 15-ton electric induction furnaces where the steel charge is charged, melted, and then tapped into a ladle. Three baghouses are associated with the melt shop area; these are the south fuller, small dustar, and South ETA pulse jet baghouses. Per the facility's ROP, the south fuller and small dustar baghouses fall under the baghouse requirements of NESHAP 5E. The ladle is then brought to four molding lines, where an operator manually controls the pouring of the ladle into the lines. There is no direct conveyance from the pour lines to the atmosphere, although emissions from the mold cooling lines are vented to the atmosphere. There are two shakeouts that each service two molding lines. At the shakeout process, iron castings are separated from the sand molds; this process is controlled by the north dustar baghouse. Sand from the shakeout process is then transferred back to the mold machines; this process is controlled by the east fuller, west fuller, and west dustar baghouses. Meanwhile, castings are delivered to a cooling accumulator to separate gates and risers. Castings then go into shotblasting machines to be cleaned. Canopy hoods at the shot blasters route emissions to the north fuller baghouse. The clean castings are quality controlled through inspections and a final audit before weighed and sent to a warehouse.

**Staff Interview:**

- There are approximately 254 employees at the facility.
- There are approximately 22-23 days of production per month. On these days, production runs for 24 hours.
- Uncertified visible emissions observations for each baghouse are conducted daily; method 9 certified visible emissions observations are conducted semiannually for each baghouse and mold cooling stack.
- Baghouse inspections are conducted every 30 days.
- Pressure drop is monitored continuously and recorded manually daily for each baghouse.
- Bag leak detection systems are on all stacks. The facility receives nuisance alarms occasionally.
- All baghouses at the facility are negative pressure baghouses; Approximately half are pulse-jet and half are reverse air.
- A rotary shakeout was replaced with a high deck shakeout process in December 2021.
- The South ETA pulse jet baghouse was added to the facility approximately five years ago and is utilized for secondary control of emissions within the melt shop.
- A mold ignitability test, as required by NESHAP 5E, was conducted in the last 2-3 years.
- Bags of carbon coke were seen in the melt shop. When asked, the facility personnel explained that it was used as a raw material to supplement for carbon content.
- From an email follow-up with Dan Plant, it was discovered the South ETA baghouse had never been tested for emissions. The emissions testing is planned for August 2022. In the same response, Dan Plant provided the facility's Air Pollution Control Plan, which stated that baghouse differential pressures are to be kept between 0.5-8 inches of water column (in WC).

**TOUR INFORMATION**

**EPA Tour of the Facility:** Yes

**Data Collected and Observations:**

- The bags for the West Duster baghouse were being changed during the inspection. The seals for the baghouse were not working and dust was seen escaping from the baghouse hopper for the duration of the bag change.
- Slag piles are kept outdoors.
- When changed, full baghouse bags are closed and stored in open-top dumpsters.
- Baghouse pressure drop readings were recorded during the inspection for the following baghouses in inches of water column:
  - 2014 North Duster: 1.3 in WC
  - North Fuller: 4.1 in WC
  - West Duster: 2.50 in WC
  - South ETA: 4.71 in WC

**Photos and/or Videos:** were taken during the inspection.

## **CLOSING CONFERENCE**

- ☒ Provided U.S. EPA point of contact to the facility

### **Requested documents:**

- Daily differential pressure readings and visible emission observations for South ETA, small dustar, south fuller, north dustar, east and west fuller, west dustar, and north fuller baghouses from 6/1/2022 to 6/15/2022.
- Visible emission checks for FGMOLDCOOLING from 6/1/2022 to 6/15/2022.
- Most recent method 9 observations for each baghouse for which observations were conducted.
- Latest stack test for South ETA baghouse, FG-GRAYIRON, and FGWDUSTAR.
- Maintenance guidelines and recommendations for operation of north fuller, small dustar, south fuller, South ETA baghouse, and w dustar baghouses.
- Most recent 2 semi-annual deviation reports.
- June 2020 to May 2022 monthly amount of iron processed through FG-GRAYIRON, including 12-month rolling average
- Most recent baghouse inspections for small dustar, south fuller, South ETA baghouse, and w dustar baghouses.
- Subpart EEEEE ignitability determination study for mold vents and scrap certification.
- SDS sheet for pre-mixed bond.

## **DIGITAL SIGNATURES**

Report Author: \_\_\_\_\_

Section Supervisor: \_\_\_\_\_

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**APPENDICES AND ATTACHMENTS**

- 1.* Appendix A: Digital Image Log

**Facility Name:** Metal Technologies, Inc.- Three Rivers Gray Iron  
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**APPENDIX A: DIGITAL IMAGE LOG**

<b>1. Inspector Name:</b> Patrick Miller	<b>2. Archival Record Location:</b> Region 5 Electronic Records Center
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<b>Image Number</b>	<b>File Name</b>	<b>Date and Time (incl. Time zone and DST)</b>	<b>Description of Image</b>
1	IMG_1451.JPG	2022:06:15 11:06:52	Tapping Furnace #1
2	IMG_1452.JPG	2022:06:15 11:08:58	Furnace #4 lid closed
3	IMG_1453.JPG	2022:06:15 11:10:22	#1 Furnace Charge
4	IMG_1454.JPG	2022:06:15 11:15:11	#4 Mold Line with Duct Work
5	IMG_1455.JPG	2022:06:15 11:18:04	Shot Blasting
6	IMG_1456.JPG	2022:06:15 11:28:59	North Fuller/West Dustar Baghouse
7	IMG_1457.JPG	2022:06:15 11:35:06	Primary Melt Shop Baghouses and South ETA